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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/02/2003

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04/05/2006

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EXAMINER

KRAMSKAYA, MARINA

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/725,799	Applicant(s) IWASAKI ET AL. (fre)	
	Examiner Marina Kramskaya	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolewski et al., US 6,069,484, in view of Hinds et al., US 5,629,628, and McWilliam et al., US 6,883,113.

As per Claim 1, Sobolewski discloses a capacitance measurement system having a test head comprising:

multiple input/output terminals (plurality of terminals from pre-amps **12**) connecting a device under test (DUT **14'**);

a source and measure unit (SMU **10**) supplying voltage or current (column 1, lines 38-39);

a switch matrix (**15**) connecting said multiple input/output terminals ((plurality of terminals from pre-amps **12**) and said source and measure unit (SMU **10**)

Sobolewski does not disclose

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a capacitance measurement unit having an impedance measurement function;
and

a switch matrix connecting said source and measure unit; and

an external controller that is connected to said test head and controls a test head controllers wherein said test head controller controls said capacitance measurement unit, and said switch matrix.

Hinds discloses a capacitance measurement system (150) having a test head comprising:

a capacitance measurement unit (150) having an impedance measurement function (broadly interpreted as resistance measurement, see FIG. 5); and

a switch matrix (130, 140) connecting said multiple input/output terminals (110), and said capacitance measurement unit (150); and

an external controller (180) that is connected to said test head and controls a test head controller (160) wherein said test head controller controls a capacitance measurement unit (150) and said switch matrix (130, 140).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include an impedance measurement function within a capacitance measurement unit, connect a switching matrix to the capacitance measurement unit, and an external controller that is connected to a test head and controls a test head controllers wherein said test head controller controls the capacitance measurement unit and said switch matrix, as taught by Hinds, in the system of Sobolewski, in order to allow for user control over the measurement system,

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whereby the internal test head controller sends and receives measurement control and measurement data for detection of properties from the device under test.

Sobolewski, as modified by Hinds, does not disclose a test head controller that controls a source and measure unit.

McWilliam discloses a test head controller (**130**: column 3, lines 17-19) that controls a source and measure unit (**120**: column 3, lines 37-41).

Further, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the function of controlling the source and measure unit into the test head controller, as taught by McWilliam, in the system of Sobolewski, in order to direct or manage the operation of the source and measure unit (McWilliam: column 3, lines 50-51).

3. Claims 3-4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolewski et al., US 6,069,484, in view of Hinds et al., US 5,629,628, and McWilliam et al., US 6,883,113, as applied to claim 1 above, and further in view of Andeen et al., US 4,772,844.

As per Claim 3, Although, Sobolewski, as modified discloses the measurement system as applied to Claim 1, above, and Hinds discloses the capacitance measurement system, wherein said test head comprises an external connection terminal (**110**) of said switching matrix (**130, 140**), and said capacitance measurement unit and said switching matrix are connected via the external connection terminal (FIG.

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5), Sobolewski, as modified does not disclose a calibration terminal incorporated in the connection of the test head to the capacitance measurement unit.

Andeen discloses a calibration terminal (ABS., lines 7-9) for capacitance measurement.

Therefore, it would have been obvious to a person of ordinary skill in the art to include a calibration terminal, as taught by Andeen, in the measurement system of Sobolewski, in order to obtain more precise capacitance measurements.

As per Claims 4 and 7, Sobolewski, as modified, discloses the measurement system as applied to Claims 1 and 3 above.

Sobolewski, as modified, does not disclose a capacitance measurement unit that transmits an absolute value and phase of impedance of said device under test to said test head controller.

Andeen discloses capacitance measurement unit that transmits an absolute value and phase of impedance of said device under test to said test head controller (i.e. processor) (column 2, lines 23-24, 37-39).

Therefore, it would have been obvious to a person of ordinary skill in the art to measure the capacitance in terms of absolute value and phase and report to the controller, as taught by Andeen, in the measuring system of Sobolewski, in order to record the precise capacitance measurements.

4. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobolewski et al., US 6,069,484, in view of Hinds et al., US 5,629,628, and McWilliam et al., US 6,883,113, as applied to claims 1 and 3 above, and further in view of Kitayoshi, US 5,093,627.

Sobolewski, as modified, discloses the measurement system as applied to Claims 1 and 3 above.

Sobolewski, as modified, does not disclose a capacitance measurement unit that transmits a value of a real part and an imaginary part of an impedance of said device under test to said test head controller.

Kitayoshi, discloses a capacitance measurement unit (column 1, lines 6-8) that transmits a value of a real part and an imaginary part of an impedance of said device under test (column 2, lines 12-29) to said test head controller **240**.

Therefore, it would have been obvious to a person of ordinary skill in the art to transmit the measured impedance of the DUT as a real and an imaginary component to the controller, as taught by Kitayoshi, in the measurement system of Sobolewski as modified, in order to measure the impedance of the DUT with more precision.

Response to Arguments

5. Applicant's arguments, see paragraph 4, page 4 of document labeled "REMARKS", filed 12/27/2005, with respect to the rejection(s) of original claim 2 (currently amended claim 1) under 35 U.S.C. 103(a) have been fully considered and are persuasive. The argument pertaining to the references of Sobolewski and Hinds lacking

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the function of a test head controller controlling a source and measure unit has been found persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of recognition that McWilliam et al. (US 6,883,113 newly cited by the examiner) teaches the function of a test head controller controlling a source and measure unit. The delay in citation of the above reference is regretted. Accordingly, this action is NOT made FINAL.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Norton, US 5,844,412, and Van Der Weide et al., US 2002/0197709, disclose a capacitance measuring system with a test head controller and an external controller.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Kramskaya whose telephone number is (571)272-2146. The examiner can normally be reached on M-F 7:00-4:00.

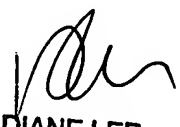
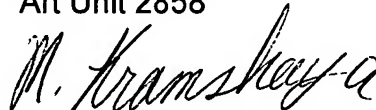
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MK

Marina Kramskaya
Examiner
Art Unit 2858



DIANE LEE
SUPERVISORY PATENT EXAMINER